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Beef Cow Feeding Demonstration

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Abstract
Pregnant mature beef cows were fed one of five rations: tub ground hay, low corn supplementation plus hay, high corn plus hay, low corn gluten feed (CGF) pellets plus hay, and high CGF plus hay. All treatments resulted in weight gains and limited body condition score changes. The hay and high CGF pellet diet resulted in statistically different weight gains compared with the other supplementation programs.

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Summary

Pregnant mature beef cows were fed one of five rations: tub ground hay, low corn supplementation plus hay, high corn plus hay, low corn gluten feed (CGF) pellets plus hay, and high CGF plus hay. All treatments resulted in weight gains and limited body condition score changes. The hay and high CGF pellet diet resulted in statistically different weight gains compared with the other supplementation programs.

Introduction

Beef cow-calf operations use a variety of winter-feeding strategies in south central Iowa. The McNay Farm has looked at various stockpiled-grazing strategies, and conducted a small demonstration on corn supplementation. Weather conditions create periodic shortages of hay as well as low nutritional quality in hay that is available. Local producers consider many supplementation and substitution programs as they develop feeding plans. Corn and corn gluten feed (CGF) are both readily available and economical in this region, and are common beef supplements.

Materials and Methods

Due to limited availability of pen space in the beef facility, a 78-day cow feeding trial was conducted during mid to late pregnancy. The trial included six cows per replication, two reps for each of five feeding treatments. Cows were weighed and evaluated for body condition score at the start, middle, and end of the feeding period.

Feeding treatments included:

Tub ground hay – average consumption of 32.1 pounds of hay per day

Low corn – average consumption of 3.5 pounds of shelled corn plus 26.2 lbs of hay

High corn – average consumption of 8.1 pounds of corn and 19.4 pounds of hay

Low CGF – average consumption of 3.9 pounds of CGF pellets and 26 lbs of hay

High CGF – average consumption of 8.9 pounds of CGF pellets and 18.7 lbs of hay

Rations were designed to approach the energy requirements of the cow. Hay was limit fed to corn and CGF treatments, with more hay fed on lower grain diets compared with higher grain diets. More CGF was fed than corn due to book value estimates of energy.

Results and Discussion

Cows on the hay only treatment did consume more hay than predicted, with tub grinding increasing consumption by 10% (Table 1). Performance on the hay only treatment was better than expected (Table 2). Hay used in the trial marginally met crude protein requirements of the cow (10.5% crude protein), and was considered under requirements for energy (46 NE m, 23 NE g). Some of the 93 pound weight gain associated with this treatment may be associated with fill differences due to this bulky, lower passage diet. The body condition score decrease of nearly .5 BCS seems to contradict this weight advantage. This type of contrast also was found on the corn and hay treatments.

Variation of results between reps and extreme range in weight gain performance created some contrary results in the corn treatments. Cows in the high corn treatment had a weight gain of 84 pounds, but a decrease in BCS of .31. Cows in the low grain program had a gain of only 62 pounds, but virtually no change in BCS (-.02).

The CGF treatments also displayed some contrasts between BCS and weight gain (Table 3). Low CGF gain of 87 and high CGF gain of 121 was a wider range than expected. Body condition was basically unchanged in both treatments.

All of the programs resulted in minimal changes in BCS (less than .5 change). The hay only and high corn treatments did demonstrate significantly more reduction in BCS than the low corn and low or high CGF treatments. The high CGF treatment resulted in significantly higher weight gains compared with the other supplement programs.

Implications

This project demonstrated several feeding strategies, and found some advantages to most of them. Under average ingredient market prices, all five programs will be similar in cost per cow per day. Corn gluten feed supplementation was a positive strategy. This single year project leads to more questions that may require follow-up demonstrations. Other demands for feedlot space and time availability at the McNay Farm limit the opportunities for follow-up at this time.

Table 1. Feed consumption/day.

	Hay	Corn	Corn gluten pellets
Hay only	32.1		
Hay/low corn	26.25	3.5	
Hay/high corn	19.4	8.1	
Hay/low gluten	26.0		3.9
Hay/high gluten	18.7		8.9

Table 2. Weight gain change of beef cows fed various diets.

			Probability values				
	Total weight gain per head	Standard error	Hay only	Hay/low corn	Hay/high corn	Hay/low CGF	Hay/high CGF
Hay only	93.167	10.268		0.0383	0.5455	0.7064	0.0671
Hay/Low Corn	62..333	10.268	0.0383		0.1356	0.0868	0.0002
Hay/High Corn	84.333	10.268	0.5455	0.1356		0.8193	0.0170
Hay/Low CGF	87.667	10.268	0.7064	0.0868	0.8193		0.0293
Hay/High CGF	120.909	10.725	0.0671	0.0002	0.0170	0.0293	

Table 3. Condition score changes of beef cows fed various diets.

			Probability values				
	Condition score gain per head	Standard error	Hay only	Hay/low corn	Hay/high corn	Hay/low CGF	Hay/high CGF
Hay only	-0.4792	0.109		0.0044	0.2844	0.0020	0.0010
Hay/Low Corn	-0.0208	0.109	0.0044		0.0638	0.7880	0.5746
Hay/High Corn	-0.3125	0.109	0.2844	0.0638		0.0350	0.0191
Hay/Low CGF	0.0208	0.109	0.0020	0.7880	0.0350		0.7650
Hay/High CGF	0.0682	0.114	0.0010	0.5746	0.0191	0.0191	